current through the battery will be high, but as the state of charge increases the battery voltage increases, causing a drop in the current.

When the battery is fully charged, its voltage will be almost equal to the generator voltage, and very little current will flow into the battery. When the charging current is low, the battery may remain connected to the generator without damage.

The figures given above as voltage regulator settings for 12 - or 24 - volt systems are intended to meet average conditions. However, when the airplane is to be used in hot or cold climates, the following settings are recommended:

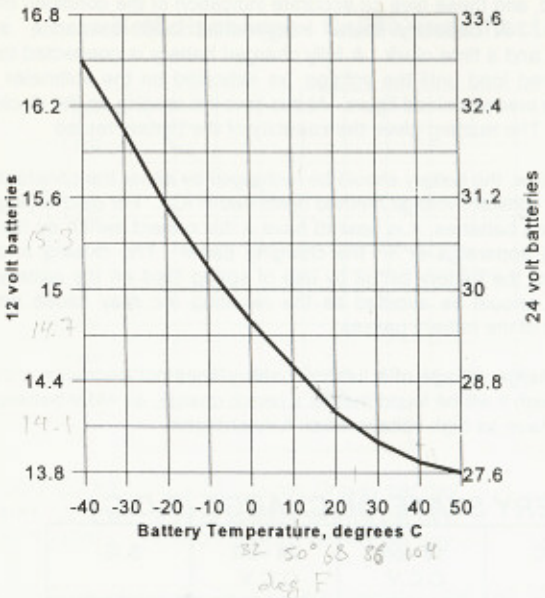
Battery Temperatures	Generator Voltage	
	24 V	12 V
90° F. or higher	27.5	13.75
50° to 90° F.	28 to 28.5	14.0 - 14.2
50° F. or lower	29.5	14.75

The reason for the above recommendations is evident when it is known that with a variation of battery temperature there is a variation of the final or full charge voltage.

At extremely low battery temperatures a setting of 28.5 volts does not supply enough current to charge a battery adequately. At battery temperatures in excess of 90° the current input at 28.5 volts tends to over charge the battery.

When using a constant - voltage system in a battery shop. A voltage regulator which automatically maintains a constant voltage is incorporated in the system. A battery of high capacity has lower resistance than a battery of low capacity. Hence a high capacity battery will draw a higher charging current than a low capacity battery when both are in the same state of charge, and when the charging voltages are equal.

Recommended Charging Voltage



Constant-Current Charging (CI)

Constant - current charging is the most convenient for charging batteries outside the airplane because several batteries of varying voltages may be charged at once on the same system. A constant - current system usually consists of a rectifier to change the normal alternating current supply to direct current. A transformer is used to reduce the available 110 or 220 - volt alternating current supply to the desired level before it is passed through the rectifier.

If a constant - current system is used, multiple batteries may be connected in series, provided that the charging current is kept at such a level that the battery does not overheat or gas excessively.

Conditioning after Deep Discharge see applicable ICA